

Class 25 Highlights

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In the last class we went over the transport theorem which gives the time rate of change of property P_{ij} , where P_{ij} represents any scalar vector or tensor property of a collection of particles in a volume V . It is given by the sum of the amount created in volume V and the amount coming through the surface S . The volume V is fixed so the time derivative can be taken inside the integral. We also went over the conservation of mass, where the time derivative is zero since the mass of a body should remain constant in any configuration. In the equation for \dot{m} , volume is arbitrary so the integrand vanishes and we are left with the Eulerian continuity equation given in terms of density.